multicomp PRO

Handheld DMM with Bluetooth
MP730624

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1. Safety Information

Safety Considerations

Before any operations, please read the following safety precautions to avoid any possible bodily injury and prevent damage to this product or any other products connected. To avoid any contingent danger, use this product only as specified.

EC Declaration of Conformity:
Meets intent of Directive 2004/108/EC for Electromagnetic Compatibility.

■   Limit operation to the specified measurement category, voltage, or amperage ratings.

■   **Do not use the multimeter if it is damaged.** Before you use the multimeter, inspect the case. Look for cracks or missing plastic. Pay particular attention to the insulation surrounding the connectors.

■   **Do not use the test leads provided for other products.** Use only the certified test leads specified for this product.

■   Inspect the test leads for damaged insulation or exposed metal.

■   Before use, verify the multimeter's operation by measuring a known voltage.

■   Only the qualified technicians can implement the maintenance.

■   **Always use the specified battery type.** The power for the multimeter is supplied with a battery. Observe the correct polarity markings before you insert the batteries to ensure proper insertion of the batteries in the multimeter.

■   **Check all Terminal Ratings.** To avoid fire or shock hazard, check all ratings and markers of this product. Refer to the user's manual for more information about ratings before connecting to the multimeter.

■   Do not operate the multimeter with the cover or portions of the cover removed or loosened.

■   **Use Proper Fuse.** Use only the specified type and rating fuse for the multimeter.

■   **Do not operate if in any doubt.** If you suspect damage occurs to the multimeter, have it inspected by qualified service personnel before further operations.

■   **To avoid electric shock, do not operate this product in wet or damp conditions.**

■   **Do not operate in an explosive atmosphere.**

■   **Keep product surfaces clean and dry.**

■   Do not apply more than the rated voltage (as marked on the multimeter) between terminals, or between terminal and earth ground.

■   When measuring current, turn off the circuit power before connecting the multimeter in the circuit. Remember to place the multimeter in series with the circuit.

■ When servicing the multimeter, use only the specified replacement parts.

■ Use caution when working above 60 V DC, 30 V AC RMS, or 42.4 V peak. Such voltages pose a shock hazard.

■ When using the test leads, keep your fingers behind the finger guards on the test leads.

■ Remove the test leads from the multimeter before you open the battery cover.

■ To avoid false readings, which may lead to possible electric shock or personal injury, replace the battery as soon as the low battery indicator appears and flashes.

■ Disconnect circuit power and discharge all high-voltage capacitors before testing resistance, continuity, diodes, or capacitance.

■ **Use the proper terminals, function, and range for your measurements.** When the range of the value to be measured is unknown, set the rotary switch position as the highest range, or choose the auto ranging mode. To avoid damages to the multimeter, do not exceed the maximum limits of the input values shown in the technical specification tables.

■ Connect the common test lead before you connect the live test lead. When you disconnect the leads, disconnect the live test lead first.

■ Before changing functions, disconnect the test leads from the circuit under test.

Measurement Category

The multimeter has a safety rating of 1000 V, CAT III and 600 V, CAT IV.

Measurement category definition

Measurement CAT I applies to measurements performed on circuits not directly connected to the AC mains. Examples are measurements on circuits not derived from the AC mains and specially protected (internal) mains- derived circuits.

Measurement CAT II applies to protect against transients from energy-consuming equipment supplied from the fixed installation, such as TVs, PCs, portable tools, and other household circuits.

Measurement CAT III applies to protect against transients in equipment in fixed equipment installations, such as distribution panels, feeders and short branch circuits, and lighting systems in large buildings.

Measurement CAT IV applies to measurements performed at the source of the low-voltage installation. Examples are electricity meters and measurements on primary over current protection devices and ripple control units.

Safety Terms and Symbols

Safety Terms

Terms in this Manual. The following terms may appear in this manual:

⚠ **Warning:** Warning indicates the conditions or practices that could result in personal injury or death.

⚠ **Caution:** Caution indicates the conditions or practices that could result in damage to this product or other property.

Terms on the Product. The following terms may appear on this product:

Danger: It indicates an injury or hazard may immediately happen.

Warning: It indicates an injury or hazard may be accessible potentially.

Caution: It indicates a potential damage to the instrument or other property might occur.

Safety Symbols

Symbols on the Product. The following symbol may appear on the product:

⎓	Direct current (DC)	⎓	Fuse
∿	Alternating current (AC)	⚠	Caution, risk of danger (refer to this manual for specific Warning or Caution information)
≃	Both direct and alternating current	**CAT II**	Category II overvoltage protection
⏚	Ground terminal	**CAT III**	Category III overvoltage protection
CE	Conforms to European Union directives	**CAT IV**	Category IV overvoltage protection
▣	Equipment protected throughout by double insulation or reinforced insulation		

2. Quick Start

General Inspection

After you get a new multimeter, make a check on the instrument according to the following steps:

1. **Check whether there is any damage caused by transportation.**

    If it is found that the packaging carton or the foamed plastic protection cushion has suffered serious damage, do not throw it away first till the complete device and its accessories succeed in the electrical and mechanical property tests.

2. **Check the Accessories**

    The supplied accessories have been already described in the *Appendix A: Enclosure* of this Manual. You can check whether there is any loss of accessories with reference to this description. If it is found that there is any accessory lost or damaged, please get in touch with the distributor of OWON responsible for this service or the OWON's local offices.

3. **Check the Complete Instrument**

    If it is found that there is damage to the appearance of the instrument, or the instrument can not work normally, or fails in the performance test, please get in touch with the OWON's distributor responsible for this business or the OWON's local offices. If there is damage to the instrument caused by the transportation, please keep the package. With the transportation department or the OWON's distributor responsible for this business informed about it, a repairing or replacement of the instrument will be arranged by the OWON.

Install the Batteries

The multimeter is powered by a 9V (6F22) battery.

> ⚠ **Warning: To avoid false readings, which could lead to possible electric shock or personal injury, replace the battery as soon as the low battery indicator** [−+] **appears.**
>
> **Before replacing the battery, turn off the meter, disconnect test leads and any connectors from any circuit under test, remove test leads from the input terminals. Use only the specified battery type.**

Use the following procedure to install the batteries.

(1) Ensure that the rotary switch is at the **OFF** position. Remove test leads and any connectors from the input terminals.

(2) Lift the tilt stand and loosen the screws with a suitable Phillips screwdriver and remove the battery cover.

(3) Observe the battery polarity indicated inside the battery compartment, Insert the batteries.

(4) Place the battery cover back in its original position and tighten the screws.

> ⚠️ **Caution:** To avoid instruments being damage from battery leakage, always remove the batteries and store them separately if the multimeter is not going to be used for a long period.

Adjusting the Tilt Stand

Pull the tilt stand outward to its maximum reach (about 85° to the meter body).

Power On

(1) To power ON the multimeter, turn the rotary switch to any other position except **OFF**.

(2) To power OFF the multimeter, turn the rotary switch to the **OFF** position.

Sleep Mode

The multimeter automatically enters the sleep mode if the rotary switch is not moved or a key is not pressed for 30 minutes. (When the Bluetooth is activated, this function is disabled.)

Pressing **Select** or turn the rotary switch will turn the multimeter back to operation mode from the sleep mode.

One minute before Auto Power-off, the buzzer will beep five times to warn. Before shutoff, the buzzer will emit a long beep, and then the multimeter will shut off.

Note: In sleep mode, the multimeter will still consume a little power. If the multimeter is not going to be used for a long period, the power should be turned off.

LCD Backlight and Flashlight

To implement the test among darkness, you can activate the LCD backlight and flashlight by pressing ☀/Ⓗ for more than 2 seconds. The backlight and flashlight will last for one minute. To turn off manually, pressing ☀/Ⓗ for more than 2 seconds.

Selecting the Range

● Auto ranging is set as default when the meter is powered on, **AUTO** is displayed.

● When auto ranging is enabled, press **Range** to enter the manual range mode.

● In manual range, each additional press of **Range** sets the multimeter to the next higher range, unless it is already in the highest range, at which point the range switches to the lowest range.

● When manual range is enabled, press **Range** for more than 2 seconds to enter the auto ranging mode.

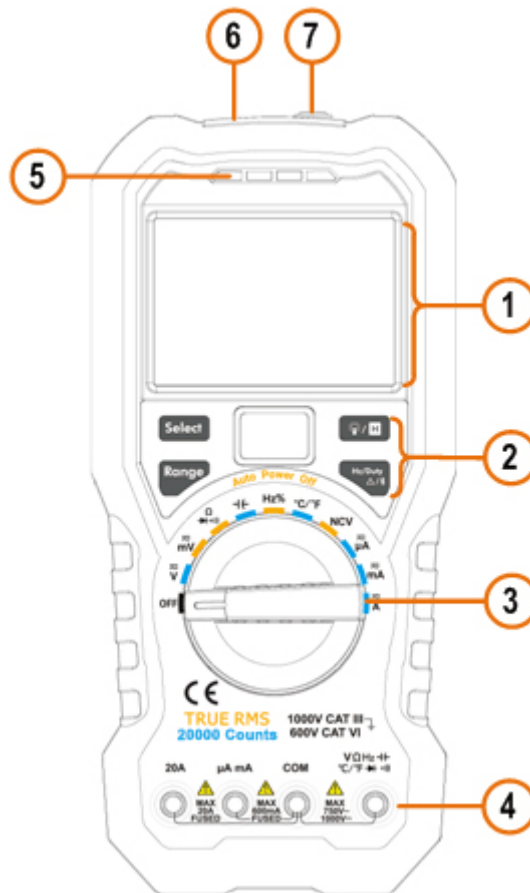**Note**: Manual range is not available when measuring capacitance.

Multimeter in Brief

Front panel

Figure 2-1 Front panel overview

No.	Description	Details
①	Display screen	Page 9
②	Keypad	Page 9
③	Rotary switch	Page 8
④	Input terminals	Page 11
⑤	Transistor test holes (only for specific models)	Page 15
⑥	LED indicator	
⑦	Non-contact voltage detector (NCV)	Page 14
⑧	Flashlight	Page 6

Rotary switch

Position	Description	Details
OFF	Power off	Page 6
$\overset{\approx}{V}$	DC or AC voltage measurement	Page 12
$\overset{\approx}{mV}$ *	DC or AC voltage measurement up to 200 millivolts)	
$\overset{\Omega}{\dashv\!\leftarrow\, \circ)))}$	Resistance measurement	Page 12
	Continuity test	Page 13
	Diode test	Page 13
⊣⊢	Capacitance measurement	Page 13
Hz%	Frequency measurement	Page 14
℃/℉	Temperature measurement	Page 14
NCV	Non-contact voltage detect	Page 14
hFE *	Transistor measurement	Page 15
$\overset{\approx}{\mu A}$	DC or AC current measurement up to2000 microamperes)	Page 15
$\overset{\approx}{mA}$	DC or AC current measurement MP730624E: up to200 milliamperes.	
$\overset{\approx}{A}$	DC or AC current measurement	

* The model with hFE function does not have the $\overset{\approx}{mV}$ position.

Keypad

| Key	Description	Details
Select	Select DC or AC	
	Select Resistance/Continuity /Diode	
Range	Auto/Manual range	Page 7
☀/H	Backlight & Flashlight	Page 6
	Data Hold	Page 16
Hz/Duty △/⸰	Select frequency/duty cycle	Page 14
	Measuring frequency in AC voltage/current mode	
	Relative Measurements	Page 16
	Bluetooth	Page 17

Display screen
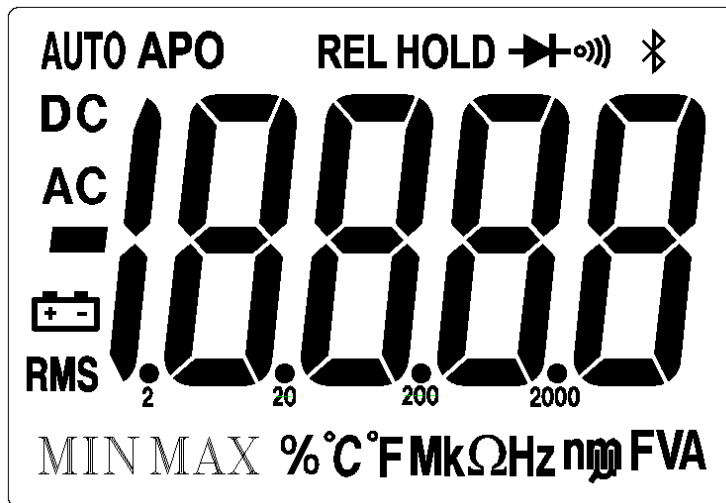
Figure 2-2 Display screen（For MP730624D/E）

Symbol	Description	Details
AUTO	Auto range	Page 7
APO	Sleep mode	Page 7
REL	Relative enabled	Page 16
HOLD	Data hold enabled	Page 16

⇥	Diode test selected	Page 13
०))	Continuity test selected	Page 13
✳	Bluetooth enabled	Page 17
DC	DC	Page 12 and
AC	AC	Page 14
📟	Measurement display ("OL" is short for overload, indicates the reading exceeds the display range)	
🔋	Battery is low	Page 5
RMS	True RMS	
%°C°FMkΩHznmμVAF	Measuring units	Page 10

Measurement units

Sign	Description	
M	Mega	1E+06 (1000000)
k	kilo	1E+03 (1000)
m	milli	1E–03 (0.001)
μ	micro	1E–06 (0.000001)
n	nano	1E–09 (0.000000001)

Sign	Description	Measurement type
℃	Degree Celsius	Temperature
℉	Degree Fahrenheit	
V	Voltage	Voltage
A	Ampere	Current
Ω	Ohm	Resistance
Hz	Hertz	Frequency
%	Percent,	Duty cycle
F	Farad	Capacitance

Input terminals

The terminal connections for the different measurement functions of the multimeter are described in the table below.

⚠ **Warning: Before starting any measurement, observe the rotary switch position of the multimeter, and then connect the test leads to the correct terminals.**

⚠ **Caution:** To avoid damaging the multimeter, do not exceed the rated input limit.

Rotary switch position	Input terminals	Overload protection	
$\overset{\approx}{V}$ (m$\overset{\approx}{V}$)	VΩHz ⊣⊢ °C/°F ✦ ∘))) COM	750 VAC/1000 VDC	
Ω ✦ ∘))) ⊣⊢ Hz% °C/°F	VΩHz ⊣⊢ °C/°F ✦ ∘))) COM	250 VAC/300 VDC	
$\overset{\approx}{\mu A}$	μA mA COM	Model with **hFE**	MP730624E: 200mA/250V. resettable fuse
$\overset{\approx}{mA}$		Model without **hFE**	MP730624E: 0.5A/1000V fast-acting fuse
$\overset{\approx}{A}$	20A COM	Model with **hFE**	20A/250V, fast-acting fuse
		Model without **hFE**	15A/1000V, fast-acting fuse

3. Making Measurements

Measuring AC or DC Voltage

⚠ **Warning: Do not measure any voltage of over 1000 Vdc or 750 Vac rms to avoid instrument damage or electric shock.**
Do not apply more than 1000 Vdc or 750 Vac rms between the common terminal and the earth ground to avoid instrument damage or electric shock.

This multimeter displays DC voltage values as well as their polarity. Negative DC voltages will display a negative sign on the left of the display.

(1) Rotate the rotary switch to $\widetilde{V}$ or $\widetilde{mV}$ ($\widetilde{mV}$ is only for specific models). Default is DC measurement mode, **DC** will be displayed. Press [Select] to switch into AC measurement mode, **AC** will be displayed.

(2) Connect the black test lead to the **COM** terminal and the red test lead to the V Ω Hz ⊣⊢ °C/°F ➡ •))) terminal.

(3) Probe the test points and read the display. Press [Range] to enable and cycle through the manual ranges.

Note: When measuring AC voltage, press [Hz/Duty △/✻] to cycle through frequency measuring, duty cycle measuring, and original measuring.

Measuring Resistance

⚠ **Caution:** To avoid possible damage to your multimeter or to the equipment under test, disconnect the circuit power and discharge all high-voltage capacitors before measuring resistance.

(1) Rotate the rotary switch to Ω ➡ •))).

(2) Connect the black test lead to the **COM** terminal and the red test lead to the V Ω Hz ⊣⊢ °C/°F ➡ •))) terminal.

(3) Probe the test points and read the display. Press [Range] to enable and cycle through the manual ranges.

Testing for Continuity

> ⚠️ **Caution:** To avoid possible damage to your multimeter or to the equipment under test, disconnect the circuit power and discharge all high-voltage capacitors before testing for continuity.

(1) Rotate the rotary switch to Ω →⊢◦))). Press `Select` once to enter continuity testing mode, ◦))) will be displayed.

(2) Connect the black test lead to the **COM** terminal and the red test lead to the VΩHz ⊣⊢ ℃/℉ →⊢ ◦))) terminal.

(3) Probe the test points to measure the resistance in the circuit. If the reading is below 30 Ω, the multimeter will beep continuously.

Testing Diodes

> ⚠️ **Caution:** To avoid possible damage to your multimeter or to the equipment under test, disconnect the circuit power and discharge all high-voltage capacitors before testing diodes.

(1) Rotate the rotary switch to Ω →⊢◦))). Press `Select` twice to enter diode testing mode, →⊢ will be displayed.

(2) Connect the black test lead to the **COM** terminal and the red test lead to the VΩHz ⊣⊢ ℃/℉ →⊢ ◦))) terminal.

(3) Connect the red test lead to the positive terminal (anode) of the diode and the black test lead to the negative terminal (cathode). The cathode of a diode is indicated with a band.

(4) Read the diode forward bias. If the test lead connection is reversed, the multimeter will display "OL".

Measuring Capacitance

> ⚠️ **Caution:** To avoid possible damage to the multimeter or to the equipment under test, disconnect circuit power and discharge all high-voltage capacitors before measuring capacitance. Use the DC voltage function to confirm that the capacitor is fully discharged.

(1) Rotate the rotary switch to ⊣⊢.

(2) Connect the black test lead to the **COM** terminal and the red test lead to the VΩHz ⊣⊢ ℃/℉ →⊢ ◦))) terminal.

(3) Probe the test points and read the display.

Measuring Frequency

(1) Rotate the rotary switch to **Hz%**.

(2) Connect the black test lead to the **COM** terminal and the red test lead to the V Ω Hz ⊣⊦ ℃/℉ ⇥ ⚬))) terminal.

(3) Probe the test points and read the display.

(4) Press [Hz/Duty △/≉] to switch between the frequency and duty cycle measurements.

Note: When measuring AC voltage or AC current, press [Hz/Duty △/≉] to cycle through frequency measuring, duty cycle measuring, and original measuring.

To measure the frequency of signal with large amplitude, it is recommended to press [Hz/Duty △/≉] to measure the frequency in AC voltage measurement mode.

Measuring Temperature

(1) Rotate the rotary switch to **℃/℉**.

(2) Connect the **red connection** of the K-type thermocouple to the V Ω Hz ⊣⊦ ℃/℉ ⇥ ⚬))) terminal and the **black connection** to the **COM** terminal.

(3) Probe the test points and read the display.

Non-Contact Voltage Detect (NCV)

To detect the presence of AC voltage, place the top of the meter close to a voltage source. When voltage is detected, the LED above the display will glow, and the meter will beep.

⚠️**Warning**:
● Always test the NCV function on a known live circuit before use.
● Do not attempt to use the meter as an AC Voltage Detector if the battery is weak or bad.
● Even without indication, voltage may still be present. Do not rely on NCV detection to check the shielded wire. Detection could be impaired by socket design, insulation thickness, or other factors.
● External interference such as static electricity sources could mistakenly trigger NCV indication.

(1) Rotate the rotary switch to **NCV**.
(2) Test the NCV function on a known live circuit before use.
(3) Place the top of the meter very close to the voltage source as shown in the figure.
(4) If voltage is detected, the LED above the display will flash, and the meter will beep.

Beep
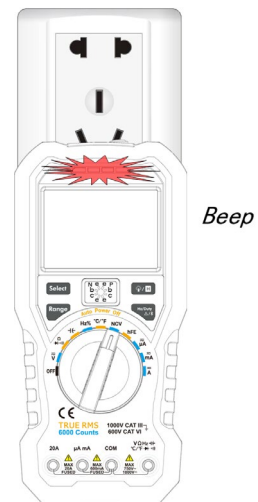
Measuring Transistor — Only for specific models

(1) Rotate the rotary switch to **hFE**.
(2) Verify the type of the transistor is NPN or PNP, and locate the Emitter, Base and Collector leads. Insert leads of the transistor into the corresponding test holes on the panel.
(3) Read the hFE value.

Measuring DC or AC Current

⚠ Warning: Never attempt an in-circuit current measurement where the open-circuit potential to earth is greater than 250 V. Doing so will cause damage to the multimeter and possible electric shock or personal injury.

⚠ **Caution:** To avoid possible damage to the multimeter or to the equipment under test, check the multimeter's fuse before measuring current. Use the proper terminals, function, and range for your measurement. Never place the test leads in parallel with any circuit or component when the leads are plugged into the current terminals.

(1) Turn off the power of the measured circuit. Discharge all high- voltage capacitors.
For MP730624E，connect the black test lead to the **COM** terminal. For currents below 200 mA, connect the red test lead to the **µA mA** terminal; for currents within 200 mA – 10 A, connect the red test lead to the **20A** terminal.
(2) Rotate the rotary switch to the appropriate position according to the measurement range, $\overset{\approx}{\text{µA}}$, $\overset{\approx}{\text{mA}}$, or $\overset{\approx}{\text{A}}$.
(3) Disconnect the circuit path to be tested. Connect the black test lead to one side of the circuit (with a lower voltage); connect the red test lead to the other side (with a higher voltage). Reversing the leads will produce a negative reading, but will not damage the multimeter.
(4) Select DC or AC measurement mode. Default is DC measurement mode, **DC** will be displayed. Press [Select] to switch into AC measurement mode, **AC** will be displayed.
(5) Turn on the power of the measured circuit, and read the display. Press [Range] to enable and cycle through the manual ranges. If "OL" is displayed, it indicates the input exceeds the selected range and the rotary switch should be set to the position with higher range.
(6) Turn off the power of the measured circuit and discharge all high-voltage capacitors. Remove the test leads and restore the circuit to the original condition.

Note: When measuring AC current, press [Hz/Duty △/*] to cycle through frequency measuring, duty cycle measuring, and original measuring.

4. Multimeter Features

Data Hold Mode

(1) Press ⌗/H to freeze the display during measurement, H will be shown on the display.

(2) Press ⌗/H again to exit this mode.

Making Relative Measurements

When making relative measurements, reading is the difference between a stored reference value and the input signal.

(1) Press △/* to enter the relative mode, **REL** will be shown on the display. The measurement value when pressing △/* is stored as the reference value.

In this mode, REL△ (current reading) = input value - reference value.

(2) Press it again to exit the mode.

In relative measurement, the manual range mode will be activated automatically. (The relative measurement should be carried out under a certain range, that is, this function is only available under the manual range mode.)

Note: This function is not available when measuring AC voltage/current, transistor (only for specific models), and frequency.

Buzzer Feature

● Press the function key, the buzzer emits a short beep.

● One minute before Auto Power-off, the buzzer will beep five times to warn. Before shutoff, the buzzer will emit a long beep, and then the multimeter will shut off.

● The buzzer beeps continuously to warn once the measured DC voltage exceeds 1000 V, or the measured AC voltage exceeds 750 V.

● The buzzer emits a long beep when the short circuit resistance is less than about 50Ω during the continuity test.

● When the Bluetooth function is idle for 10 minutes, the Bluetooth will be turned off automatically. Before turning off, the buzzer will beep twice.

5. To Connect with Mobile Device

MP730624E supports communications with Android or iOS based smart device through Bluetooth. You can use the free application software on the smart devices to monitor the measurements, perform remote control, view trending graphs, etc. The recorded data can be saved as CSV file. The maximum number of record that can be stored depends on the free storage space in your smart device. More than one meters can be connected simultaneously.

Note: Bluetooth connectivity works over a range of about 7 to 8 meters. The work range is much longer in open-sided and non-occluded wide range environment, even up to 20 meters. When the Bluetooth function is idle for 10 minutes, the Bluetooth will be turned off automatically. Before turning off, the buzzer will beep twice.

Install the free application software

System Requirements of Mobile Devices

- **Bluetooth 4.0 Android APP**
  Android devices with BLE 4.0 connectivity.
  Android versions: 4.3 or above

- **Bluetooth 4.0 iOS APP**
  iPhone 6s/6s Plus, iPhone 6/6 Plus, iPhone 5c/5s, iPhone 5
  (Support iPhone with BLE 4.0 connectivity, iOS7.0 or above; iPhone 4s or the older devices are not supported.)

For Android device

If the system and Bluetooth version of your mobile device meet the requirements, scan the QR Codes below with your mobile device, select the Bluetooth 4.0 Android APP and install it.

Bluetooth 4.0 Android APP

Note: The help content below may be not completely consistent with the application software, only for reference. Visit https://uk.farnell.com/ to get the latest version of this user manual.

For iPhone

You can search "OWON" in the APP Store, select the APP with the icon, and then install it.

Note: The help content below may be not completely consistent with the application software, only for reference. Visit https://uk.farnell.com/ to get the latest version of this user manual.
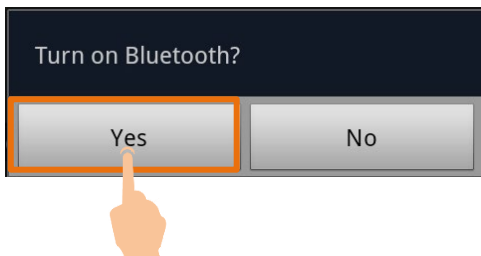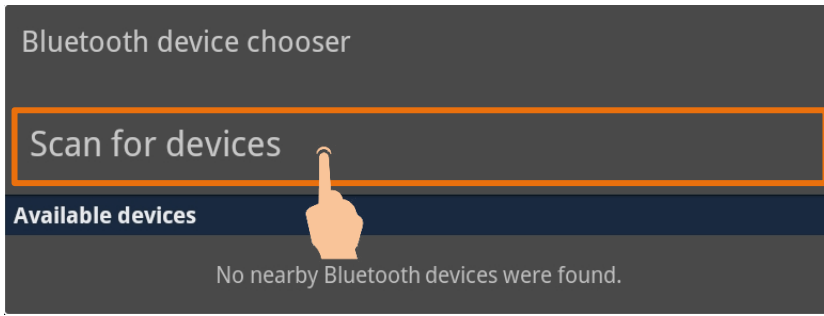
Android App

How to Connect with Android Device

(1) Install the free application software for Android on your Android smart device.
(2) Launch the "Multimeter" application.

(3) Turn on the multimeter, press and hold until appear on the display.

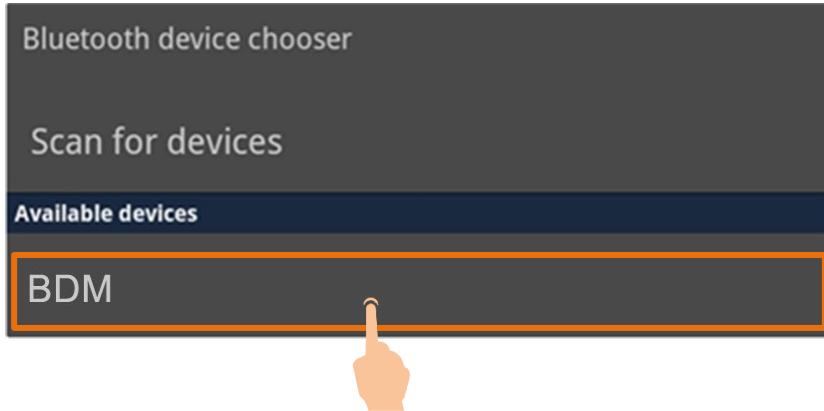(4) Click the icon on the top left of the screen to launch device connection.
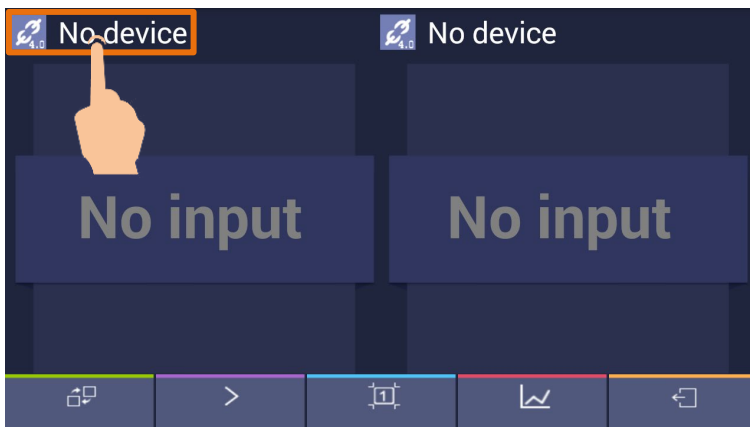
(5) If the Bluetooth function is not activated, a dialog box will ask whether to turn on Bluetooth. Click "Yes".
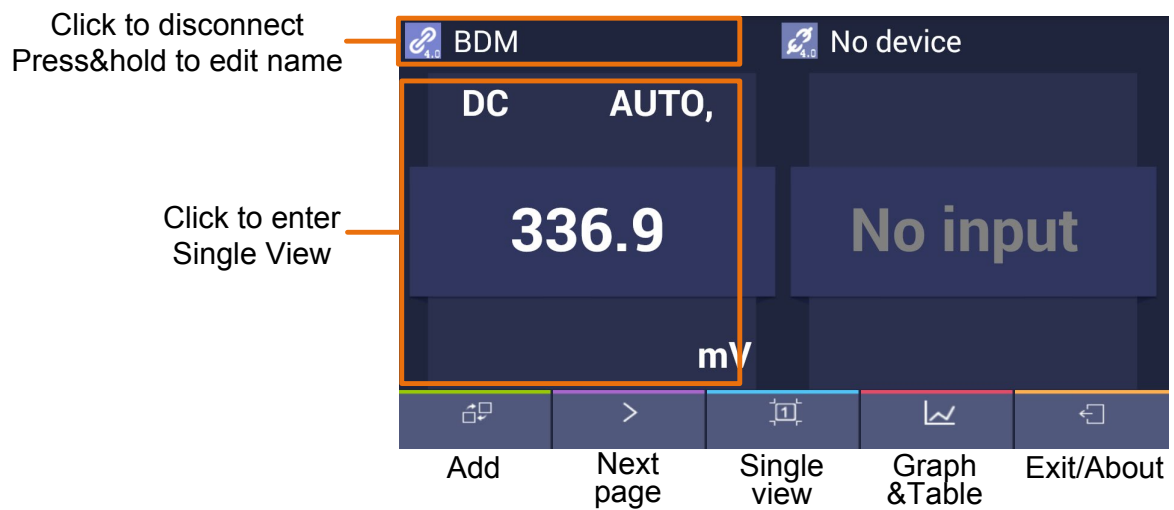

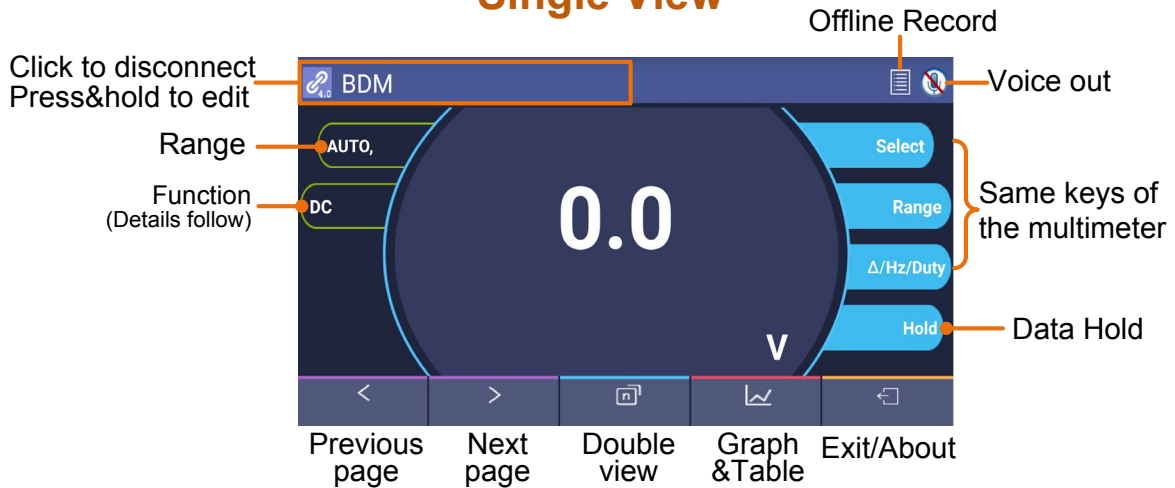
Click to scan for Bluetooth devices.

Bluetooth device chooser

Scan for devices

Available devices

No nearby Bluetooth devices were found.

(6) Click "BDM" in the device list to pair.

Bluetooth device chooser

Scan for devices

Available devices

BDM

User Interface in Android App

Double View

Click to disconnect
Press&hold to edit name

BDM   No device

DC   AUTO,

Click to enter
Single View

336.9   No input

mV

Add	Next page	Single view	Graph &Table	Exit/About

Single View

Offline Record

Click to disconnect
Press&hold to edit

Voice out

Range

Same keys of
the multimeter

Function
(Details follow)

0.0

V

Data Hold

Previous page | Next page | Double view | Graph &Table | Exit/About

Function Description Table

Display	Function
DC	Direct Current
AC	Alternating Current
RES	Measuring Resistance
DIO	Testing Diodes
BEEP	Testing for Continuity

Display	Function
CAP	Measuring Capacitance
Hz	Measuring Frequency
DUT	Measuring Duty Cycle
TEMP	Measuring Temperature
NCV	Non-contact Voltage Detect

Operations in Android App

● **Customize the meter name**

The device name of meter can be customized. Press and hold the name on the top left of the screen, a dialog box below will pop up. You can input the customized name, this name will be memorized in the device. If this meter is connected to the same device next time, the customized name will be shown. If this meter is connected to another device, the name is still the default one or the customized name to the connected device.

Device name modification

DM01

Ok | Cancel
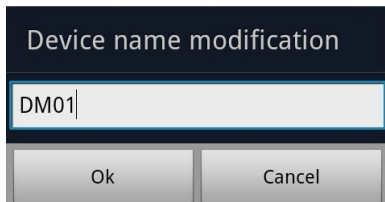
● **Add meter**: In double view, click [icon] softkey.

● **Select meter**: In single or double view, click [>] or [<] softkey.

● **Disconnect meter**: In single or double view, click [icon] or the meter name.

● **Remote Control**: In single view, the control softkeys (blue background softkeys, as Hold, Rel, Select, etc.) can be short or long pressed to perform control, just as press

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the corresponding keys of multimeter.

- **Voice out function**

  Provide an audible out of the readings through the text-to-speech (TTS) engine on your Android device. Click the [icon] icon on the top right of the screen to turn on voice out. Click [icon] to turn off. In settings menu on your Android device, you can set the language-specific voice for the spoken text, or speech rate etc.
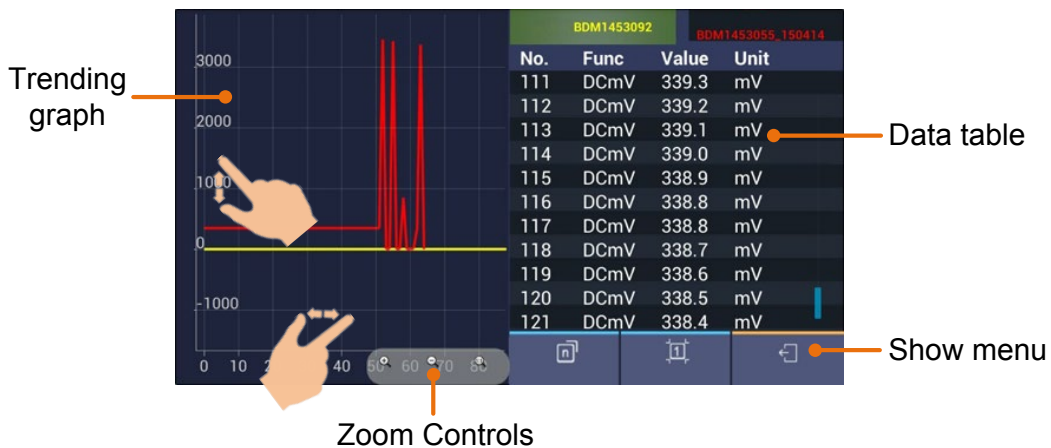 You may change to different voices by installing different TTS engines.
  TTS engines can be downloaded by scanning QR Codes or visit https://uk.farnell.com/

- **Upgrade Online**: Click [icon] , and click "About". Click "Upgrade".
- **Data Graph and Table**: Click [icon] to view data graph and table. Click [icon] to show setting menu.

Data Graph&Table

Trending graph — Data table — Show menu — Zoom Controls

Setting menu:

Softkey	Description
Open local file	Read the saved file (.CSV)
Save data	Save the displayed data into .CSV file
Share	Share the measurements via the installed sharing apps
Clear data	Clear the data that is being displayed
Setting	**Record Interval**: Set the record interval in the application software. **Enable Period**: Log data within the defined period. **Record Period**: Define the period time if the period is enabled. **Fill**: Check to fill the area as blue below the data line.
Exit	Exit the APP

Note: In trending graph, you can pinch the screen to zoom. The Y axis (value) can be zoomed by gesturing along the up-down direction, and the X axis (time) can be zoomed by gesturing along the left-right direction.
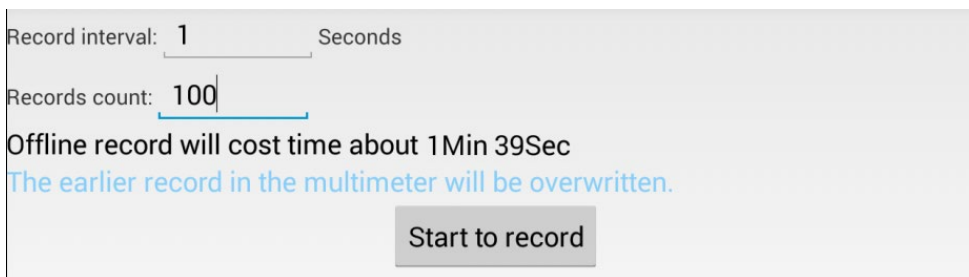
Multimeter Offline Record (Android)

When measuring with MP730624E, you can use Android device APP to send a command, the multimeter will start recording the measurements. After receiving the command, the connection will be disconnected automatically. The multimeter will record the measuring data in its own memory. After completion of the record, use Android APP to reconnect the multimeter, and then you can read the measuring data into the Android device as a CSV file. You can use this function to record for a long time without staff on duty, while reducing Bluetooth consumption to conserve the battery power of the multimeter.

Note: When the low battery indicator ⊟⊞ appears on the meter screen, the offline record function may not work correctly. Please check the batteries of the meter to ensure them in a good state.

(1) Connect the Android device with the multimeter, see "*How to Connect with Android Device*" on P18.

(2) In APP single view, tap on the ▤ icon on the top right, select Record setting from the pop-up menu.

> Record interval: 1   Seconds
>
> Records count: 100
>
> Offline record will cost time about 1Min 39Sec
> The earlier record in the multimeter will be overwritten.
>
> Start to record

(3) Set "Record interval" and "Records count" (maximum records count is 10,000). Tap on Start to record. The memory in the multimeter can only store the recording data of one time . When start to record, the earlier offline record stored in the multimeter will be overwritten. After starting, the APP interface will display

> The record command has been sent to the multimeter, Bluetooth connection will be disconnected in two seconds.

The Android device will disconnect with the multimeter in two seconds. After disconnecting, the information "**Bluetooth connection has been disconnected.**" will be shown on APP. The multimeter will record the current measurements and store in the memory.
Note: If the multimeter is in the process of recording data and not finished yet, connect the Android device and the multimeter, a dialog box will pop up:

> The device is recording data now,please choose?
>
> Stop recording   Continue and disconnect
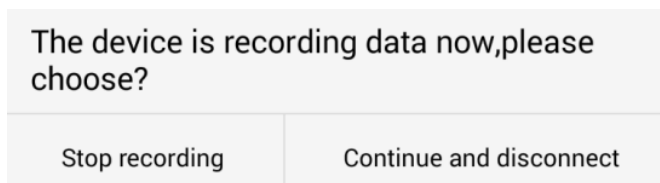
Select Stop recording , the recording process will be interrupted. The Android device will connect with the multimeter to read data.

Select `Continue and disconnect` , the multimeter will continue recording, the connection will be aborted.

(4) After completion of the record, to read the measuring data, reconnect the Android device and the multimeter.

(5) In APP single view, tap on the ▤ icon on the top right, select `Record read` from the pop-up menu. The file name start with "Offline", the following part can be customized.

Offline data bytes: 22 bytes
Offline data save as: [Offline]+ BDM
Read data

(6) Tap on `Read data` , APP will read the measuring data and save as a CSV file into the Android device. After reading, display as below:

Offline data bytes: 22 bytes
Offline data save as: [Offline]+ BDM
Back
Display data
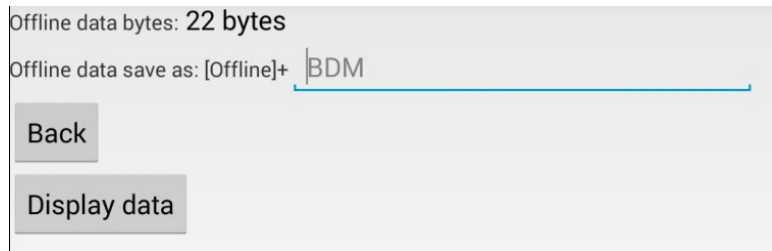
(7) Tap on `Display data` , the data will be displayed in Data Graph and Table interface.

iOS App

How to Connect with iOS Device

(1) Install the free application software for iOS on your iOS smart device.

(2) Launch the application MultimeterBLE .If the Bluetooth function is not activated, a dialog box will prompt you to turn on Bluetooth. Tap on "Settings".

Turn On Bluetooth to Allow "MultimeterBLE" to Connect to Accessories

Settings   OK
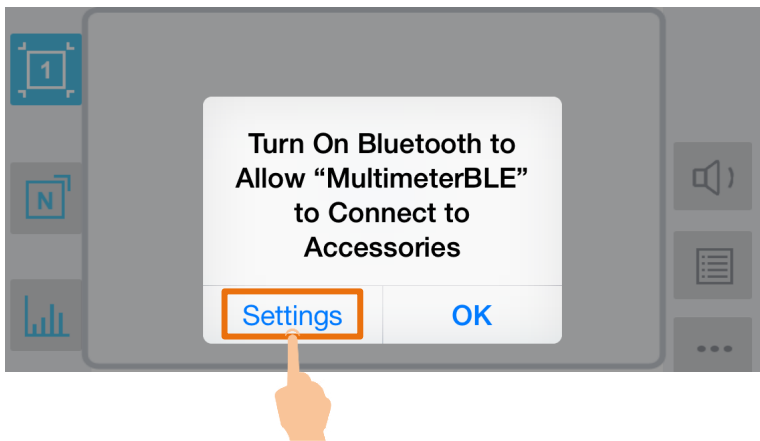
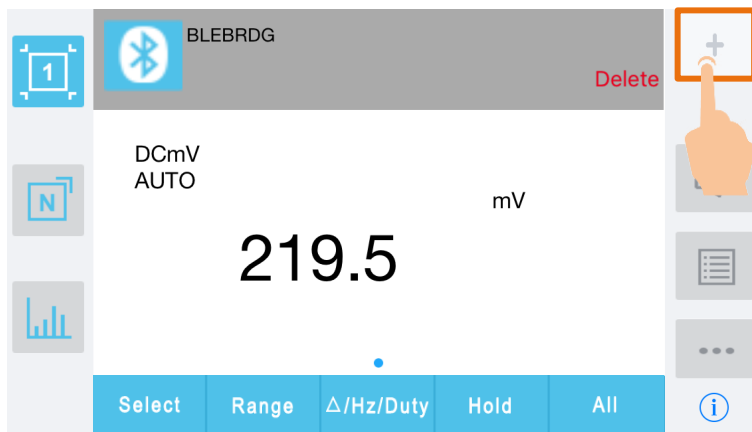Turn on Bluetooth, and return to the multimeter APP.
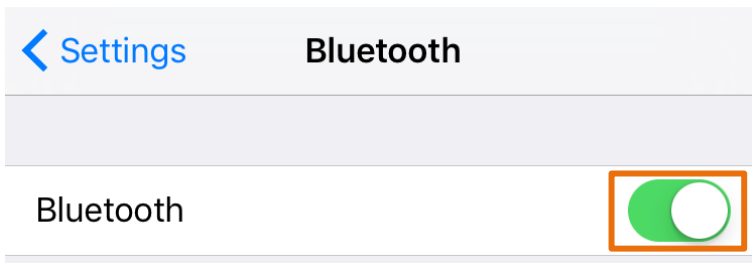
(3) Turn on the multimeter, press and hold [Hz/Duty Δ/✻] until ✻ appear on the display.

(4) Tap on the center to launch device connection.
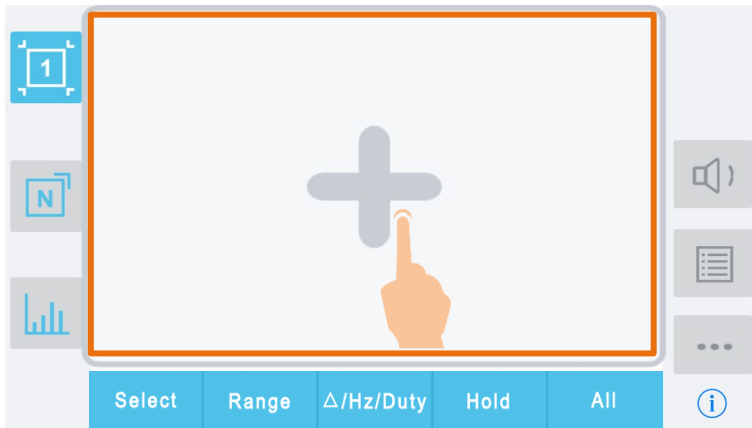
(5) Select the desired multimeter in the device list.

(6) The measurements will be shown if the connection is successful. You can tap on the [+] softkey on the right to add another multimeter.

User Interface in iOS App

Single Device View
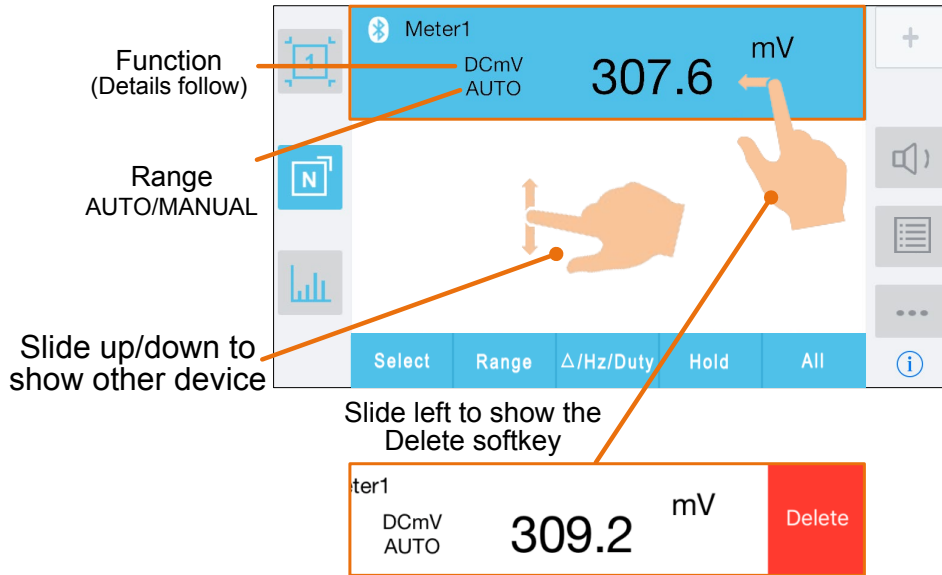
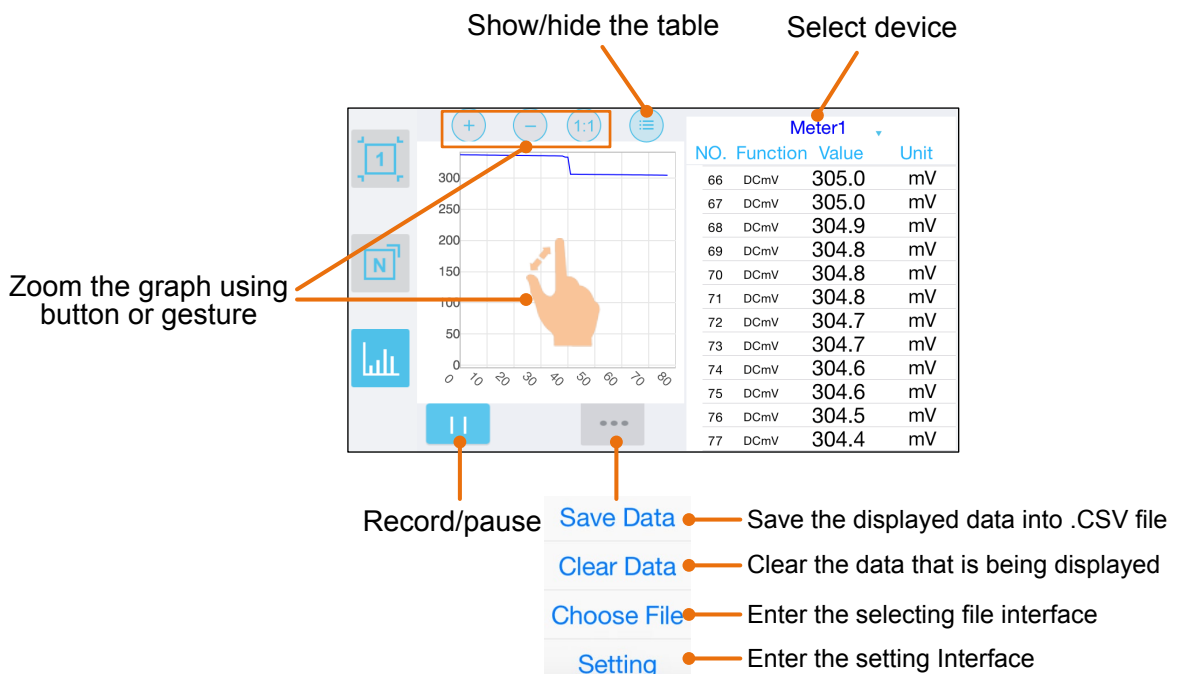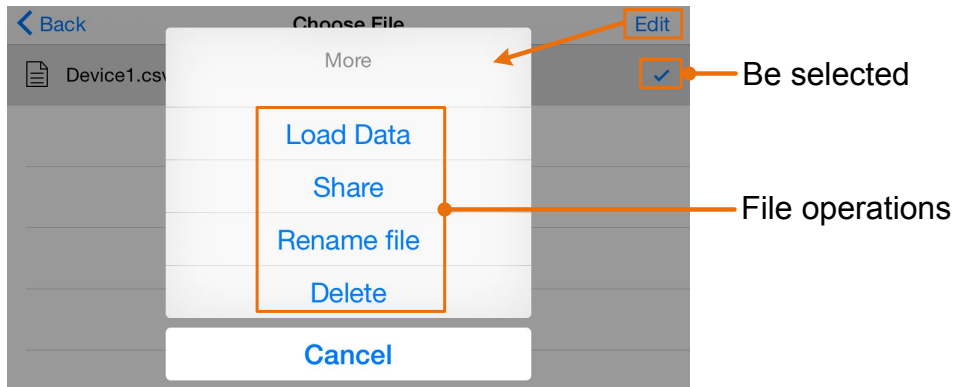- Press&hold to edit name
- Delete the device
- Single device view
- Add device
- Multi-device view
- Voice out
- Graph&Table view
- Offline record
- Slide to show other device
- Edit name/setting
- About
- Same keys of the multimeter
- Combined view

Multi-device View

Function
(Details follow)

Range
AUTO/MANUAL

Slide up/down to
show other device

Slide left to show the
Delete softkey

Function Description Table

Display	Function	Display	Function
DC	Direct Current	CAP	Measuring Capacitance
AC	Alternating Current	Hz	Measuring Frequency
RES	Measuring Resistance	DUT	Measuring Duty Cycle
DIO	Testing Diodes	TEMP	Measuring Temperature
BEEP	Testing for Continuity	NCV	Non-contact Voltage Detect

Graph&Table View

Show/hide the table   Select device

Zoom the graph using
button or gesture

Record/pause

Save Data ●——— Save the displayed data into .CSV file

Clear Data ●——— Clear the data that is being displayed

Choose File●——— Enter the selecting file interface

Setting ●——— Enter the setting Interface

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Selecting File Interface

Be selected

File operations

Setting Interface

Upper/lower limit   Alert on/off   Record interval in the application software

Operations in iOS App

● **Customize the meter name**

The device name of the meter can be customized. Press and hold the device name (in single device view), or click [···] softkey (in single or multi-device view) and select "Change Device Name", a dialog box below will pop up. You can input the customized name, this name will be memorized in the device. If this meter is connected to the same device next time, the customized name will be shown. If this meter is connected to another device, the name is still the default one or the customized name to the connected device.

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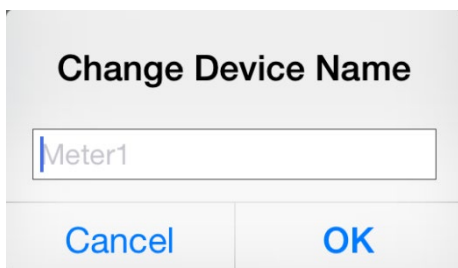
● **Add meter**: In single or multi-device view, click [+] softkey.

● **Select meter**: In single device view, slide left or right to switch the meter view. In multi-device view, click a device item to select it, the background is turned to blue.

● **Disconnect meter**: In single device view, click "Delete". In multi-device view, slide a device item to the left to show the "Delete" softkey, and click it.

● **Voice out function**: In single or multi-device view, click the [🔊] icon to turn on voice out. Click [🔊] to turn off. In settings interface, you can adjust the reading speed.

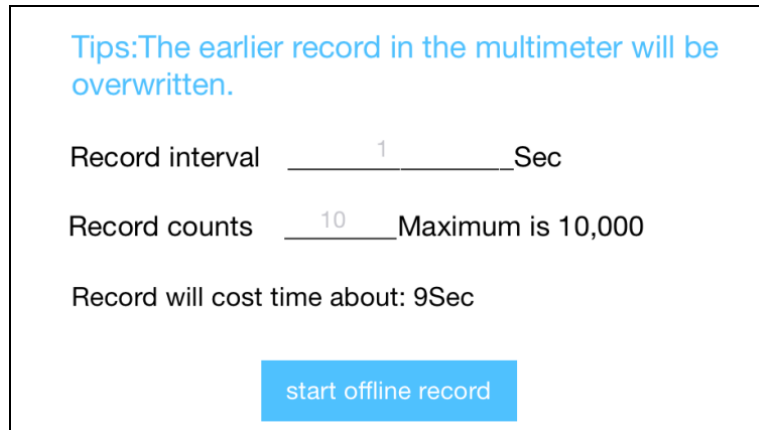● **Alert**: In setting interface, you can enable the alert notification, and set the upper/lower limit. APP will alert for any out-of-limit event.

● **Upgrade Online**: In single or multi-device view, click [ⓘ]. If "Latest" is shown, indicates it is the latest version, no need to update. If "Update" is shown, you can click to update the APP.

● **Remote Control**: In single or multi-device view, the control softkeys below

| Select | Range | Δ/Hz/Duty | Hold |

, can be short or long pressed to perform control, just as press the corresponding keys of the multimeter.

Multimeter Offline Record (iOS)

When measuring with MP730624E, you can use iOS device APP to send a command, the multimeter will start recording the measurements. After receiving the command, the connection will be disconnected automatically. The multimeter will record the measuring data in its own memory. After completion of the record, use APP to reconnect the multimeter, and then you can read the measuring data into the iOS device as a CSV file. You can use this function to record for a long time without staff on duty, while reducing Bluetooth consumption to conserve the battery power of the multimeter.

Note: When the low battery indicator [−+] appears on the meter screen, the offline record function may not work correctly. Please check the batteries of the meter to ensure them in a good state.

(1) Connect the iOS device with the multimeter, see "*How to Connect with iOS Device*" on P23.

(2) In APP device view, tap on the [≡] softkey on the right, select "**Record setting**" from the pop-up menu.

Tips:The earlier record in the multimeter will be overwritten.

Record interval   _____1_____Sec

Record counts   ___10____Maximum is 10,000

Record will cost time about: 9Sec

start offline record

(3) Set "Record interval" and "Records counts" (maximum records count is 10,000). Tap on "**start offline record**". The memory in the multimeter can only store the recording data of one time. When start to record, the earlier offline record stored in the multimeter will be overwritten.

Note: If you want to interrupt the recording process of the multimeter, reconnect the iOS device and the multimeter, select "Stop recording".

(4) After completion of the record, to read the measuring data, reconnect the iOS device and the multimeter.

(5) In APP device view, tap on the ⊞ softkey on the right, select "**Record read**" from the pop-up menu. The file name start with "Offline", the following part can be customized.

Offline data bytes: 22 bytes

Offline data save as Offline+_____Meter_____...
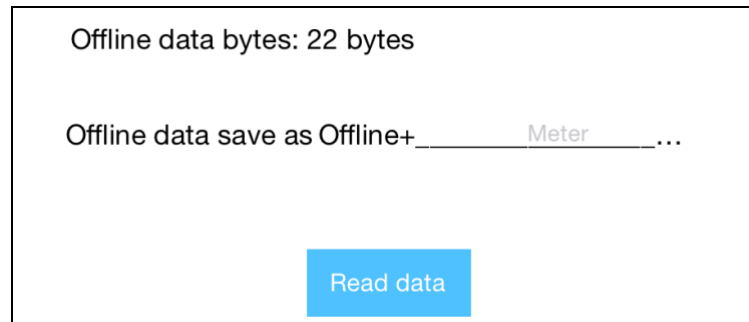
Read data

(6) Tap on "**Read data**", APP will read the measuring data and save as a CSV file into the iOS device.

After reading, display as below:

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Offline data bytes: :22bytes

Offline data save as Offline+_____Meter_____...
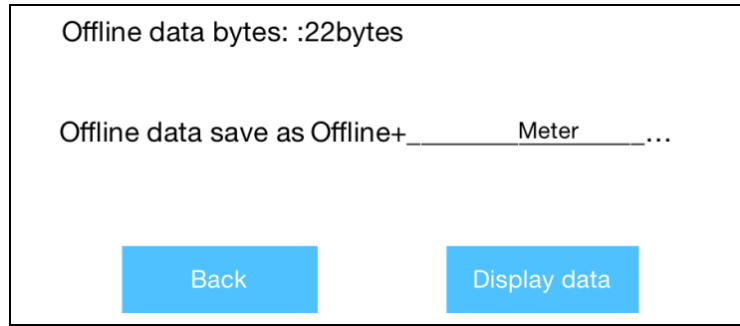
Back   Display data

(7) Tap on "**Display data**", the data will be displayed in Data Graph and Table interface.

6. To Connect with Computer

To connect the multimeter to a computer, a **Bluetooth USB adapter** should be plugged into the USB port of computer.

● Use only the Bluetooth USB adapter (optional) supplied with the product.

● The computer must be running the **Windows** operating system (Windows 10, Windows 8, Windows 7, Windows Vista, Windows XP).

MP730624E supports communications with a computer through Bluetooth. You can use the free multimeterBLE software on computer to monitor the measurements, perform remote control, view trending graphs, etc. The recorded data can be saved as CSV file. The maximum number of record that can be stored depends on the free storage space in your smart device. Up to three multimeters can be connected simultaneously.

Note: Bluetooth connectivity works over a range of about 7 to 8 meters. The work range is much longer in open-sided and non-occluded wide range environment, even up to 20 meters. When the Bluetooth function is idle for 10 minutes, the Bluetooth will be turned off automatically. Before turning off, the buzzer will beep twice.

How to Connect with Computer

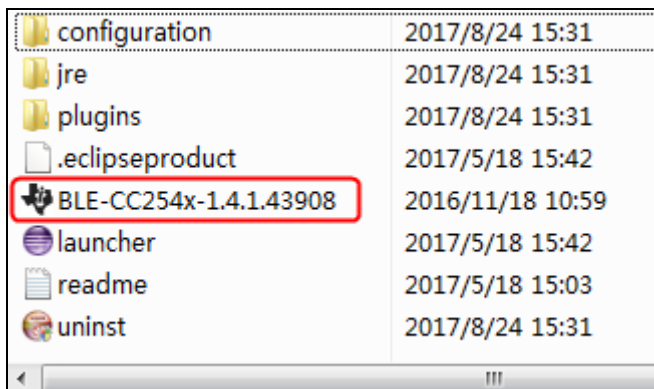### Step 1: Install multimeterBLE software

Install the multimeterBLE software on your computer.

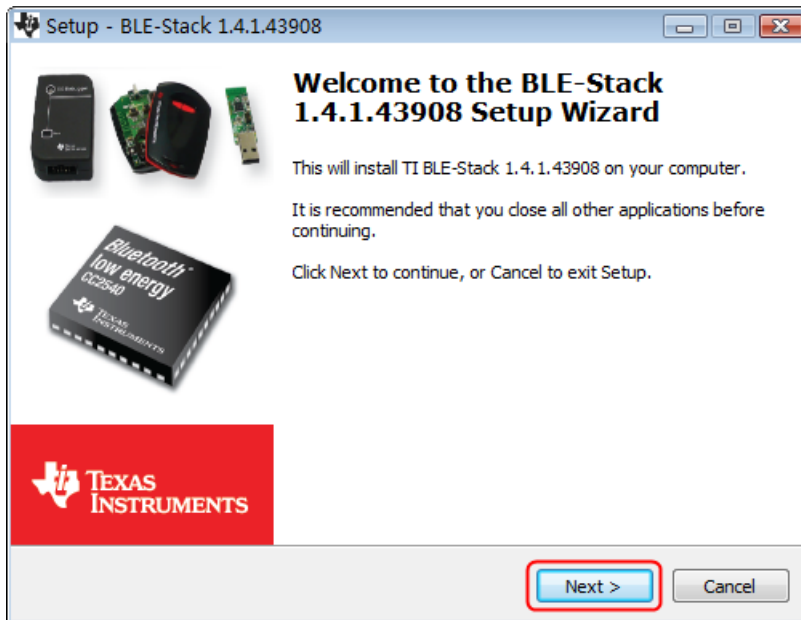### Step 2: Install driver of Bluetooth USB adapter

(1) Navigate to the multimeterBLE software installation folder (for example, C:\Program Files\multimeterBLE).
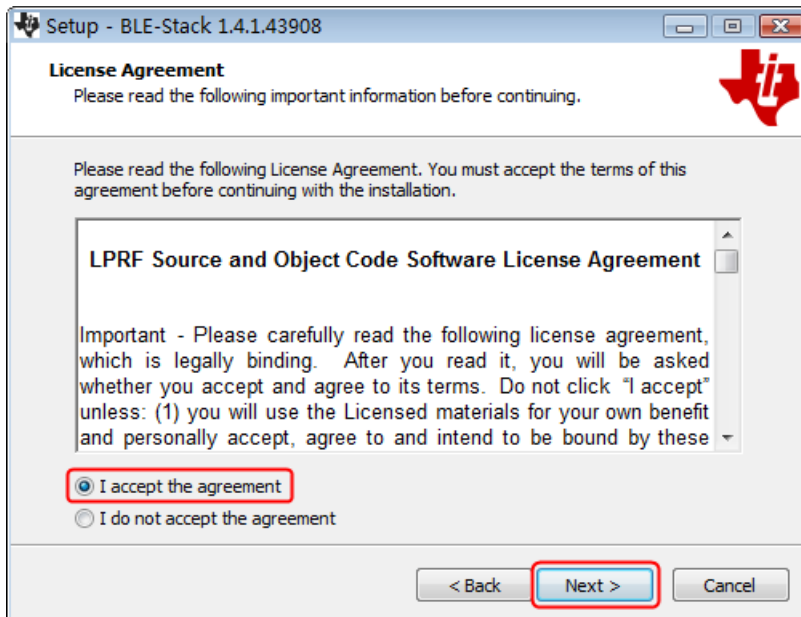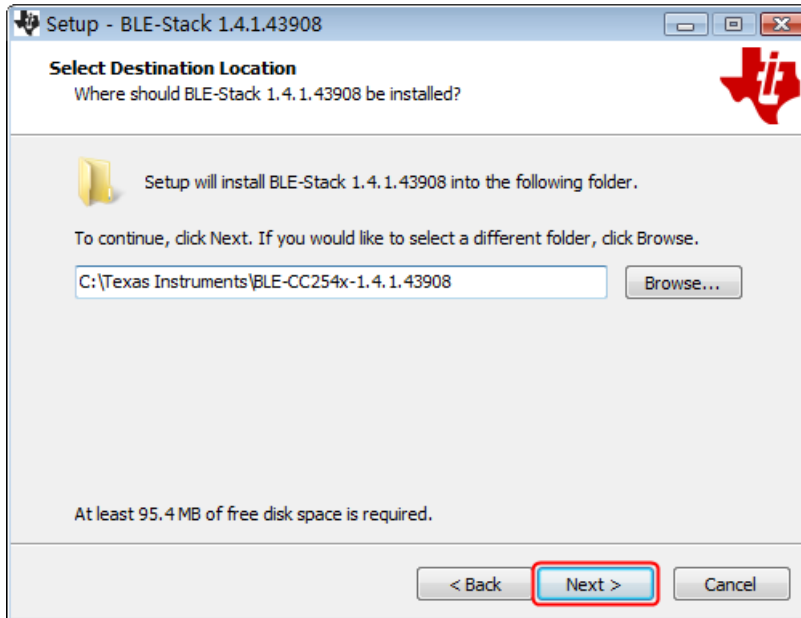Double-click **BLE-CC254x-1.4.1.43908.exe** in this folder.

(2) Click "**Next**".

(3) Select "**I accept the agreement**", and then click "**Next**".

(4) Select the destination folder, and then click "**Next**".

(5) Click "**Install**".
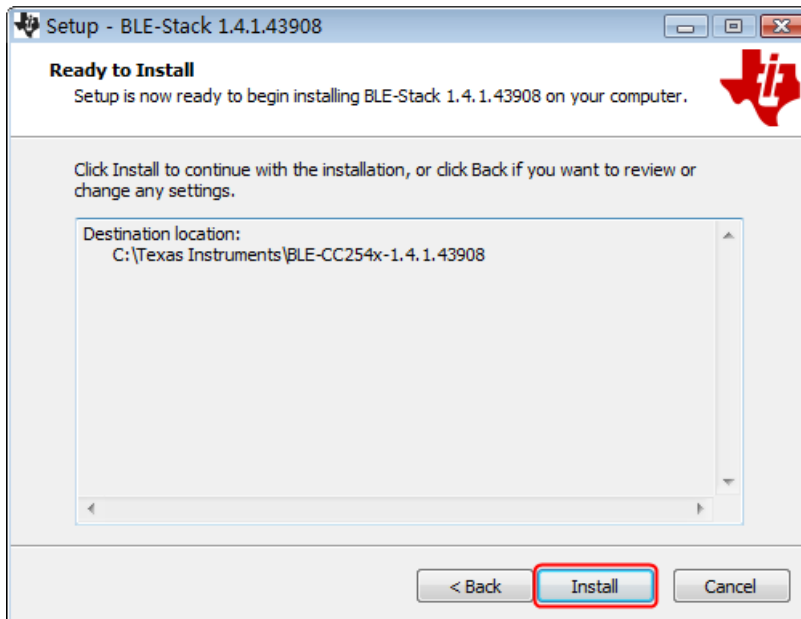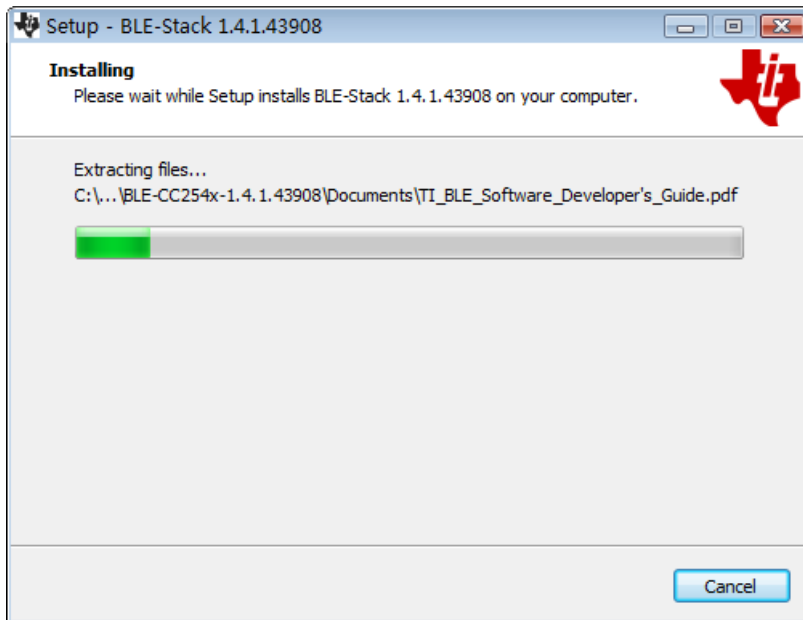
(6) Uncheck "**View the Release Notes**", and click "**Finish**" to exit Setup.
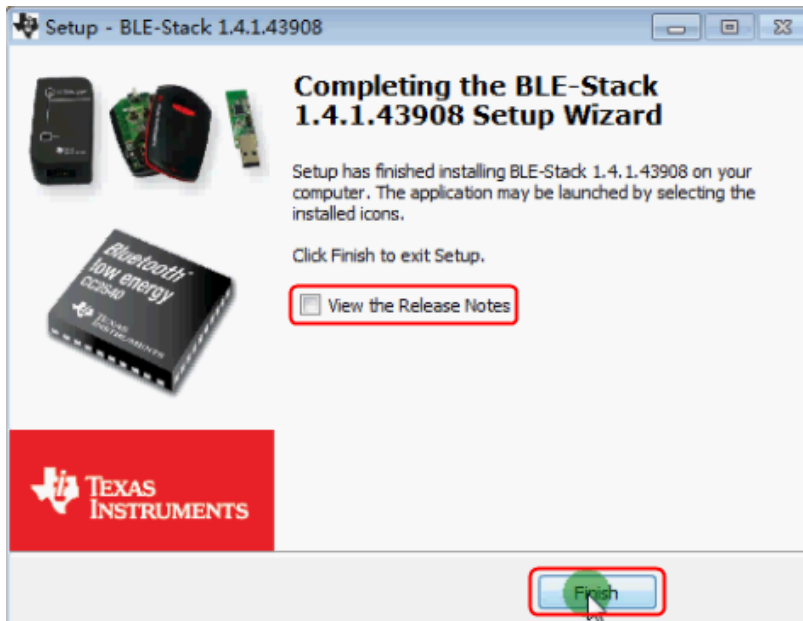
(7) Plug the Bluetooth USB adapter into a USB port on your computer.
Right click [**Computer**], you can find it on the desktop, or in [**Start**] menu. In the drop down menu, click on [**Manage**], the "Computer Management" window opens.

Click on "**Device Manager**" on the left hand side. On the right hand side, double click on "**Ports (COM & LPT)**".
Under ports, if "**TI CC2540 USB CDC Serial Port (COM#)**" is displayed, that means the driver is installed successfully. Remember the "COM #" because you will need to configure the multimeterBLE software.

Note: If an unknown device is displayed, try to install the driver manually following the steps below.
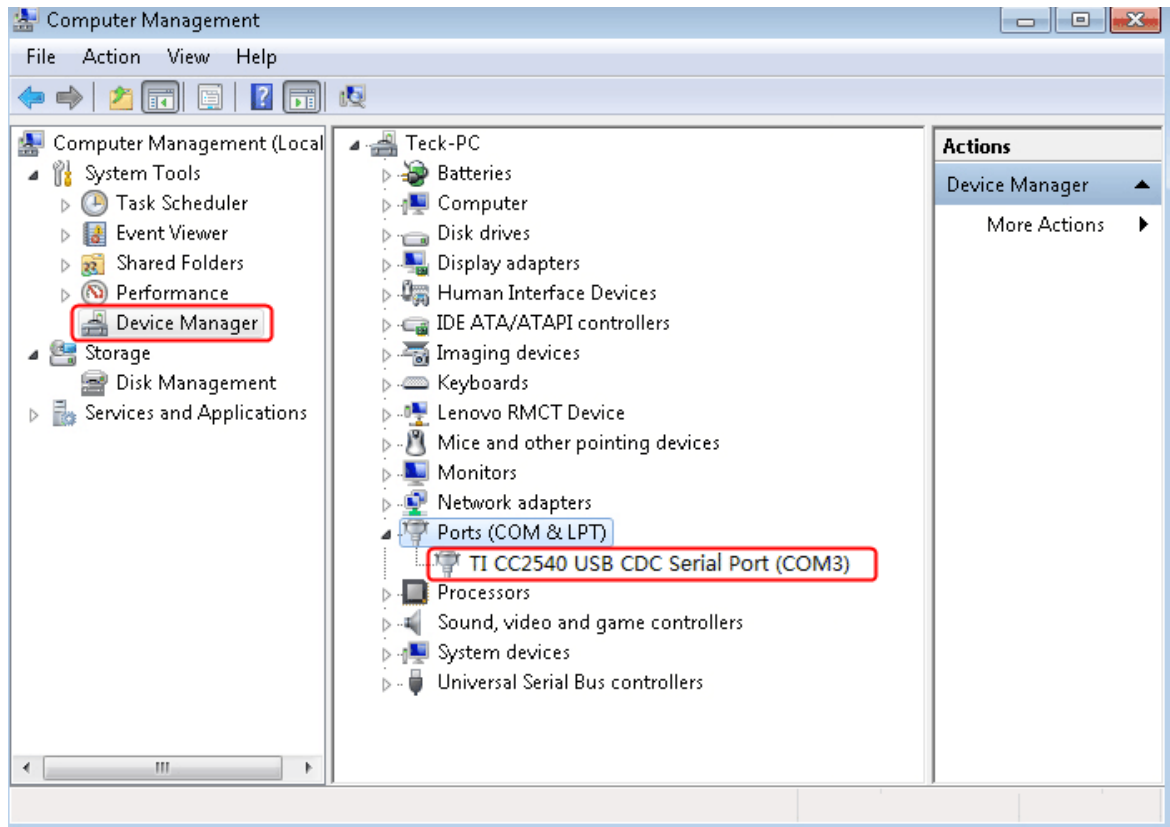
How to install the driver manually

Right click the unknown device icon, in the drop down menu, click "**Update Driver Software...**".
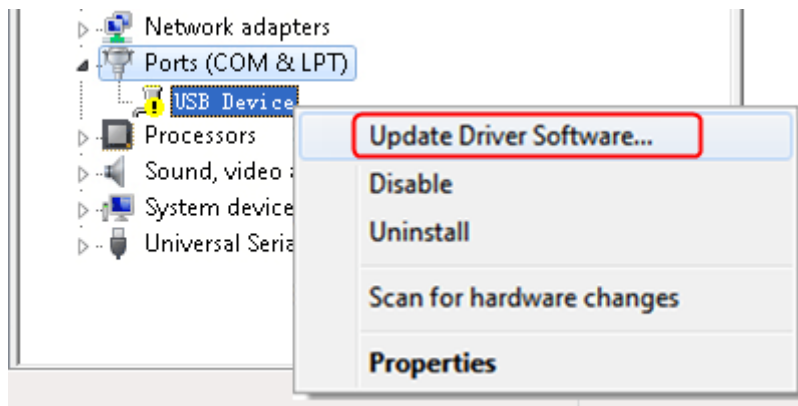
Select "**Browse my computer for driver software**".
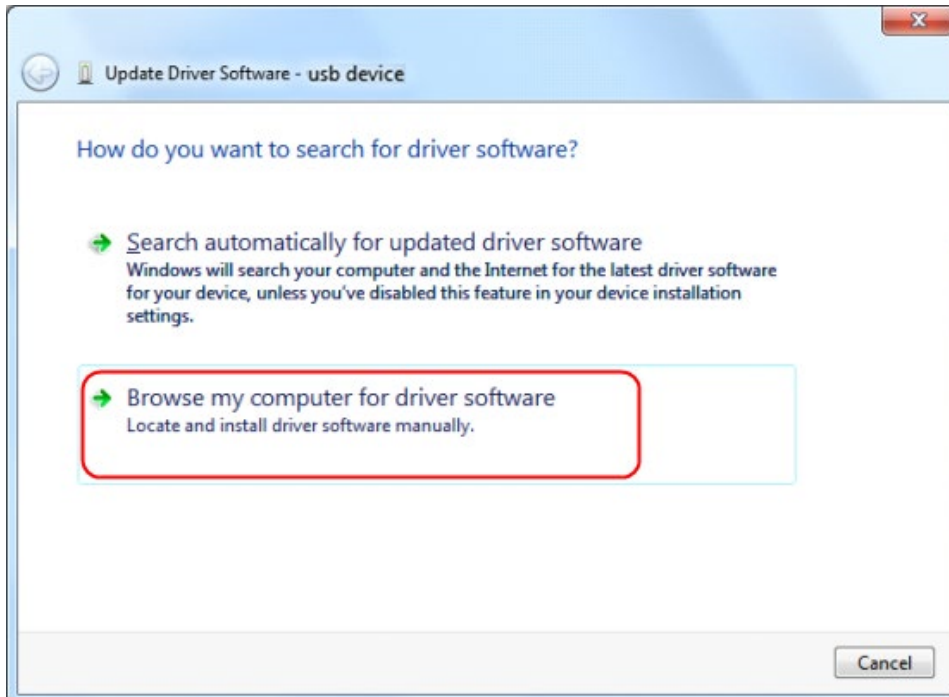
Select a directory path for the driver, and click "**Next**".
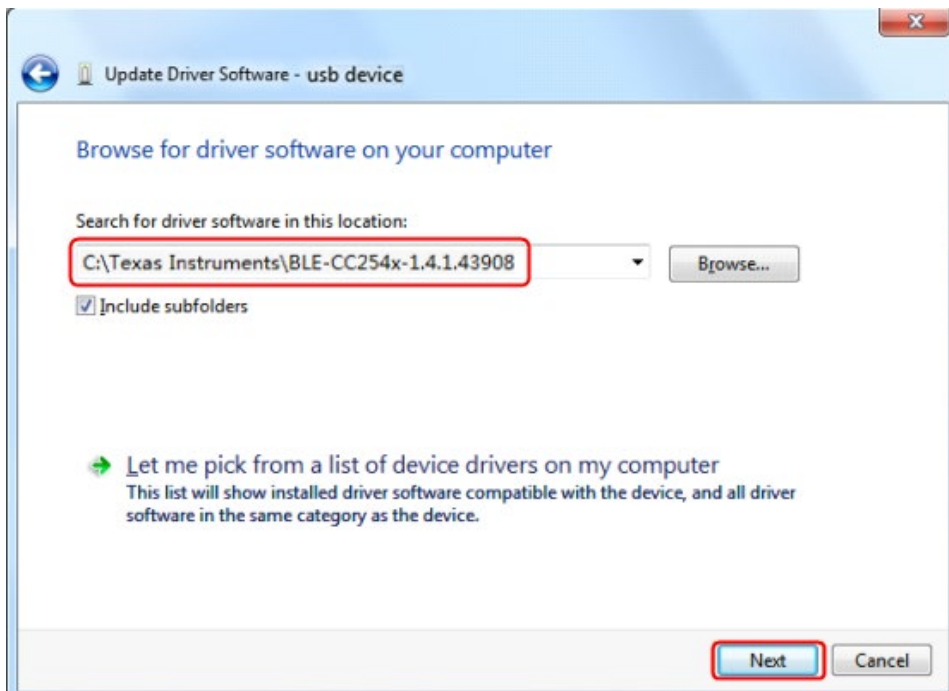
After installing successfully, click "**Close**".

In Device Manager, check if "**TI CC2540 USB CDC Serial Port (COM#)**" is displayed under Ports (COM & LPT).
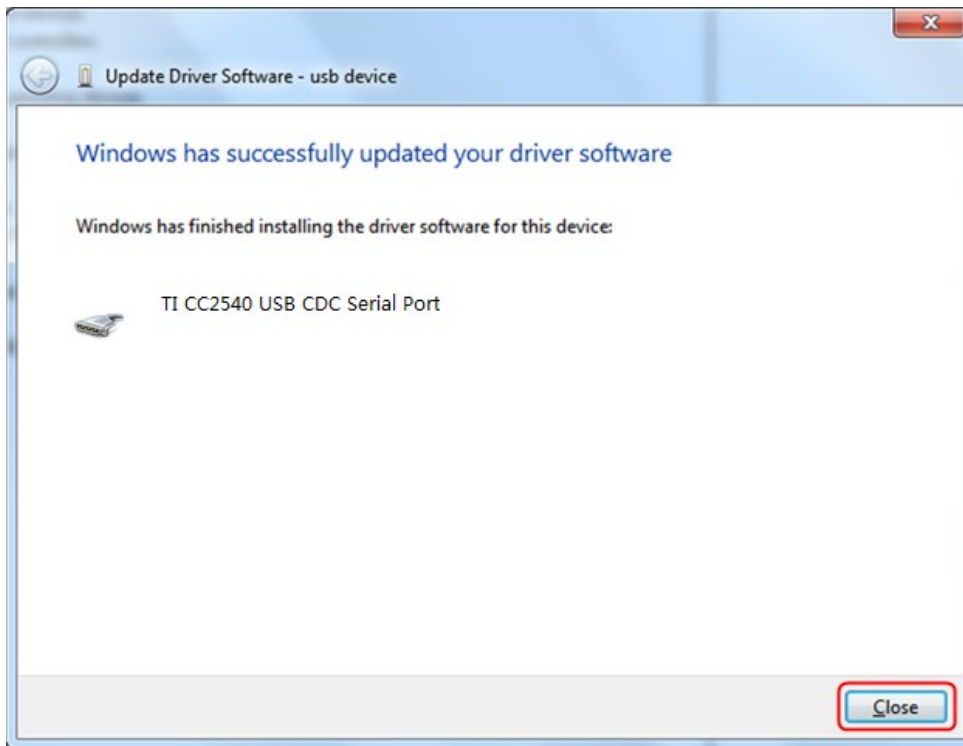
Step 3: Connect to multimeterBLE software

(1) After installing the Bluetooth USB adapter driver successfully, run the multimeterBLE software, the configure dialog box appears.
Make sure that the Bluetooth USB adapter is plugged into the computer.
To find the "Port" (COM #), you will need to look for it under "Ports (COM & LPT)" in Device Manager window.
Select the port number, and click "OK".
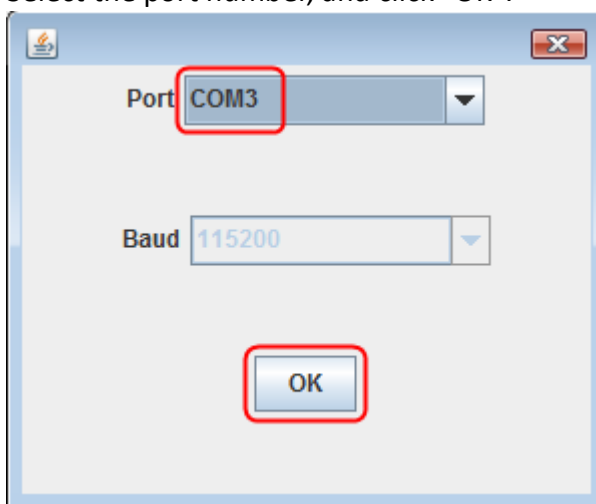
(2) Turn on the multimeter, press and hold until appear on the display.

(3) Click softkey on the right, a Scan Devices dialog box appears. A progress bar shows the progress of scanning multimeters. It will take a few seconds. When the

scan is finished, select the desired multimeter in the device list. Click the "**Connect**" button.

(4) The measurements will be shown if the connection is successful. You can tap on the

⊕ softkey on the right to add another multimeter.

User Interface in MultimeterBLE Software

Single Device View

Move the cursor here to show 🗑, click to delete the device

Single device view

Multi-device view

Graph&Table view

Scroll to show
other device

Add device

Start offline record

Read offline record

About

290.9

mV

Same keys of the multimeter

Multi-device View

Move the cursor here to show 🗑, click to delete the device

Function
(Details follow)

Range
AUTO/MANUAL

291.4

mV

Function Description Table

Display	Function	Display	Function
DC	Direct Current	CAP	Measuring Capacitance
AC	Alternating Current	Hz	Measuring Frequency
RES	Measuring Resistance	DUT	Measuring Duty Cycle
DIO	Testing Diodes	TEMP	Measuring Temperature
BEEP	Testing for Continuity	NCV	Non-contact Voltage Detect

Graph&Table View

Save the displayed data into .CSV file ——● Save
Clear the data that is being displayed ——● Clear
Check to auto scroll the data table ——☑ AutoScroll
Check to unify the unit types in data table ——☐ Singleton

Graph

Select device

Data table

Operations in MultimeterBLE Software

● **Add meter**: In single or multi-device view, click ⊕ softkey on the right.

● **Select meter**: In single device view, scroll left or right to switch the meter view. In multi-device view, click a device item to select it, the background is turned to blue.

● **Disconnect meter**: In single or multi-device view, move the cursor over the 🔵 icon, it will change to 🗑 , click it.

● **Remote Control**: In single or multi-device view, the control softkeys

| Select | Range | △/Hz/Duty | Hold | can be short or long pressed to perform control, just as press the corresponding keys of the multimeter.

● **Unify the unit types**: In Graph&Table view, sometimes the unit type will be changed while recording, for example, V is changed to mV. To unify the unite types, click "**Function**" on the top right, in the drop down menu, check "**Singleton**".

Multimeter Offline Record (PC Software)

When measuring with MP730624E, you can use PC software to send a command, the multimeter will start recording the measurements. After receiving the command, the connection will be disconnected automatically. The multimeter will record the measuring data in its own memory. After completion of the record, use PC software to reconnect the multimeter, and then you can read the measuring data into the Android device as a CSV file. You can use this function to record for a long time without staff on duty, while reducing Bluetooth consumption to conserve the battery power of the multimeter.

Note: When the low battery indicator 🔋 appears on the meter screen, the offline record function may not work correctly. Please check the batteries of the meter to

ensure them in a good state.

(1) Connect the multimeterBLE software with the multimeter, see "*How to Connect with Computer*" on P31.

(2) On software interface, click the ✏ softkey on the right, a dialog will show.
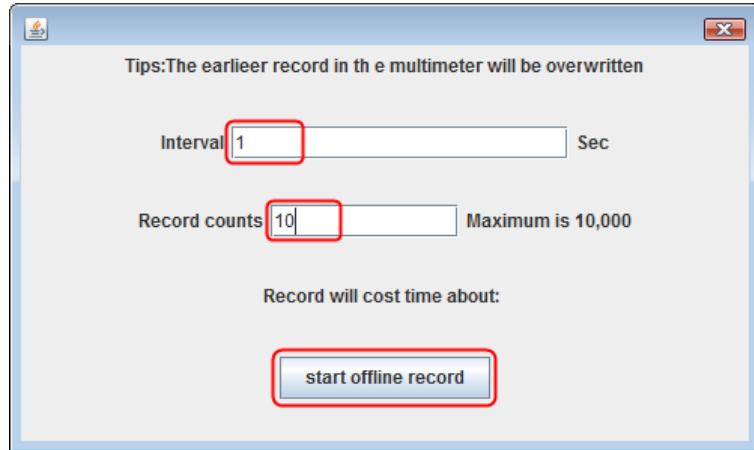
(3) Set "Interval" and "Record counts" (maximum records count is 10,000). Click "**start offline record**". The memory in the multimeter can only store the recording data of one time. When start to record, the earlier offline record stored in the multimeter will be overwritten.

Note: If you want to interrupt the recording process of the multimeter, reconnect the software and the multimeter, select "Stop recording".

(4) After completion of the record, to read the measuring data, reconnect the software and the multimeter.

(5) On software interface, click 📄 softkey on the right, a dialog will show. The file name start with "Offline", the following part can be customized.
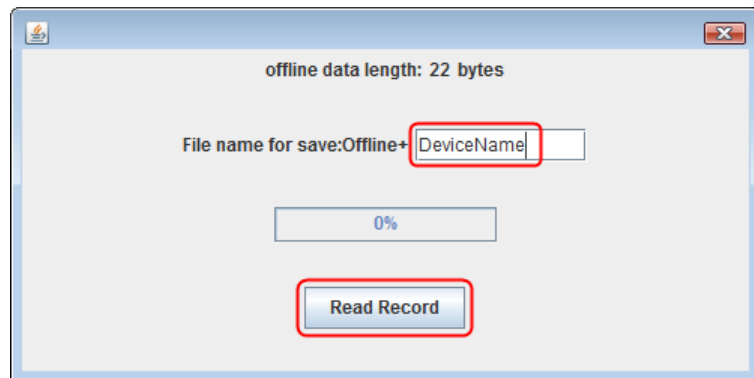
(6) Click "**Read Record**", the software will read the measuring data and save as a CSV file into computer. After reading, the dialog is as below:
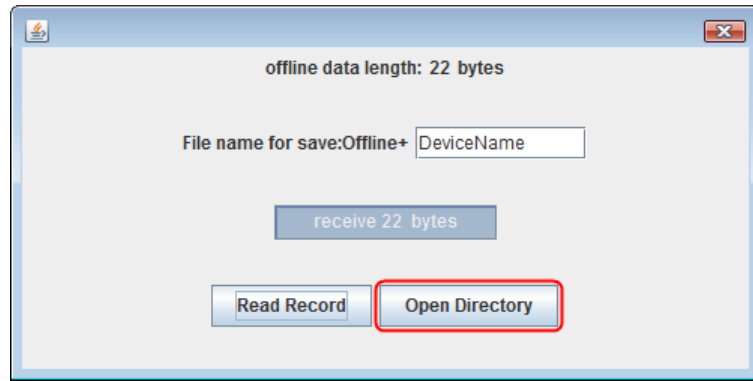
(7) Click "**Open Directory**" to open the directory where the CSV files are saved.

7. Technical Specifications

All these specifications apply to the multimeter unless otherwise explanation.

Standard conditions: The environment temperature is 18℃ to 28℃, the relative humidity is less than 80%.

Note: When measuring AC voltage/current or capacitance, accuracy guarantee range is 5% to 100% of the range.

MP730624E multimeter

Function		Measurement Range	Resolution	Function	
DC Voltage (V)	mV[1]	20.000mV	0.001mV	±(0.05%+10dig)	
		200.00mV	0.01mV		
	V	2.0000V	0.1mV	±(0.1%+2dig)	
		20.000V	1 mV		
		200.00V	10mV		
		1000.0V	0.1V	±(0.15%+5dig)	
AC Voltage (V)	mV[1]	20.000mV	0.001mV	VRMS Freq range：40Hz-1000Hz	±(0.5%+10dig)
		200.00mV	0.01mV		
	V	2.0000V	0.1mV		
		20.000V	1mV		
		200.00V	10mV		
		750.0V	0.1V		±(0.8%+10dig)
DC Current (A)	µA	200.00µA	0.01µA	±(0.5%+10dig)	
	mA	2.0000mA	0.1µA		
		20.000mA	1µA		
		200.00mA	10µA		
	A	20.000A [2]	1mA	±(2.0%+10dig)	
AC Current (A)	µA	200.00µA	0.01µA	VRMS Freq range：40Hz-1000Hz	±(0.8%+10dig)
	mA	2.0000mA	0.1µA		
		20.000mA	1µA		
		200.00mA	10µA		
	A	20.000A [2]	1mA		±(2.5%+10dig)
Resistance (Ω)		200.00Ω	0.01Ω	±(0.5%+10dig)	
		2.0000kΩ	0.1Ω	±(0.3%+3dig)	
		20.000kΩ	1Ω	±(0.3%+1dig)	

	200.00kΩ	10Ω	
	2.0000MΩ	100Ω	
	20.000MΩ	1kΩ	±(0.5%+1dig)
	200.00MΩ	10kΩ	±(5.0%+10dig)
Capacitance (F)	2.0000nF	0.1pF	±(3.0%+10dig)
	20.000nF	1pF	
	200.00nF	10pF	
	2.0000μF	100pF	
	20.000μF	1nF	
	200.00μF	10nF	
	2.0000mF	100nF	
	20.000mF [3]	1μF	
Frequency [4] (Hz)	200.00Hz	0.01Hz	±(0.1%+4dig)
	2.0000kHz	0.1Hz	
	20.000kHz	1Hz	
	200.00kHz	10Hz	
	2.0000MHz	0.1kHz	
	20.000MHz	1kHz	
Duty Cycle [5] (%)	0.1% - 99.9% (Typical：Vrms=1 V, f=1 kHz)	0.1%	±(1.2%+3dig)
	0.1% - 99.9%(≥1 kHz)		±(2.5%+3dig)
Temperature (°C/°F)	−50 ℃ to 400 ℃	0.1 ℃	±(1.0%+3℃)
	−58 ℉ to 752 ℉	0.1 ℉	±(1.2%+6℉)

[1] The rotary switch position $\widetilde{\overline{\mathbf{mV}}}$ is only for specific models.

[2] When measuring current, for 10 A to 15 A, the measuring duration should not be over 2 minutes within 10 minutes, and in this 10 minutes, no other current should flow through except within the measuring duration; for 15 A to 20 A, the measuring duration should not be over 10 seconds within 15 minutes, and in this 15 minutes, no other current should flow through except within the measuring duration.

[3] When measuring capacitance, for the 20.00mF range, the measuring duration should be over 30 seconds.

[4] When measuring frequency, the typical waveform is Square or Sine. The signal meets the following conditions.

Frequency	Amplitude (rms)
1 Hz – 4 MHz	≥ 100 mV
4 Hz – 8 MHz	≥ 200 mV
8 Hz – 10 MHz	≥ 300 mV

[5] When measuring duty cycle, the typical waveform is Square.

Note: when measuring resistance and capacitance, the influence of the resistance reactance of the pen itself on the measured value should be considered.

other current should flow through except within the measuring duration.

[3] When measuring capacitance, for the 60.00mF range, the measuring duration should be over 30 seconds.

[4] When measuring frequency, the typical waveform is Square or Sine. The signal meets the following conditions.

Frequency	Amplitude (rms)
1 Hz – 5 MHz	≥ 700 mV

[5] When measuring duty cycle, the typical waveform is Square.

Note: when measuring resistance and capacitance, the influence of the resistance reactance of the pen itself on the measured value should be considered.

Characteristics	Instruction	
Display		
	MP730624E	19999
Frequency Response (Hz)	(40 - 1000) Hz	
Sample rate for digital data	3 times/second	
Bluetooth	√	
Auto ranging	√	
True RMS	√	
Diodes Test	√	
Sleep Mode	√	
Continuity Test	√	
NCV function	√	
Flashlight	√	
Low battery indication	√ (The "▭" is displayed when the battery is under the proper operation range.)	
Data Hold	√	
Relative Measurement	√	
LCD Backlight	√	
Input Protection	√	
Input Impedance	≥ 10 MΩ	
Battery	9V battery (6F22)	
LCD Size	58.5 mm * 41 mm	
Weight (without package)	0.32 kg	
Dimension	190 mm * 90 mm * 56 mm	
Working temperature	0℃ to 40℃	
Storage temperature	－10℃ to 60℃	
Relative Humidity	≤ 80%	
Altitude	Operating: 3,000 meters Non-operating: 15,000 meters	

8. Appendix

Appendix A: Enclosure

Standard Accessories:

Multimeter Leads	**K-type thermocouple**	**Quick guide**	**9V battery (6F22)**	**Bolt driver**

Alligator Clips

Options:

Bluetooth USB adapter to PC

Appendix B: General Care and Cleaning

⚠ **Warning: To avoid electrical shock or damage to the multimeter, ensure that the insides of the casing stay dry at all times.**

Cleaning

To clean the instrument exterior, perform the following steps:

Wipe the dust from the instrument surface with a soft cloth. Do not make any scuffing on the screen when clean the LCD. Clean the instrument with a wet soft cloth not dripping water. It is recommended to scrub with soft detergent or fresh water. To avoid damage to the instrument, do not use any corrosive chemical cleaning agent.

Dirt or moisture in the terminals can distort readings. Follow the steps below to clean your multimeter.

1. Turn the multimeter off and remove the test leads.

2. Turn the multimeter over and shake out the dirt in the terminals.

3. Wipe the contacts in each terminal with a clean swab dipped in alcohol.

Interval Period of Adjustment:
 One year is recommended for the calibration interval period.

INFORMATION ON WASTE DISPOSAL FOR CONSUMERS OF ELECTRICAL & ELECTRONIC EQUIPMENT.
When this product has reached the end of its life it must be treated as Waste Electrical & Electronics Equipment (WEEE).   Any WEEE marked products must not be mixed with general household waste, but kept separate for the treatment, recovery and recycling of the materials used.   Contact your local authority for details of recycling schemes in your area.

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